

What is claimed is:

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1. A bar-shaped light guide designed to allow an illuminating light incident from an end surface to be reflected by the inner surface and to emit it from an emission plane formed along the longitudinal direction, characterized in that the cross-sectional shape of the bar-shaped light guide in the direction perpendicular to its longitudinal direction is substantially 1/4 oval of which the end of the major axis side is chamfered, and a side of the bar-shaped light guide along the longitudinal direction comprises an emission plane parallel to a minor axis direction of the oval, a plane parallel to the major axis direction of the oval, a light scattering plane provided with light scattering patterns on a plane formed by chamfering the end of the major axis side of said 1/4 oval, and a reflecting curved plane for reflecting scattered light from the light scattering patterns toward the emission plane.
2. The bar-shaped light guide according to claim 1, wherein the plane parallel to the major axis direction of said oval is chamfered to include a focal position.
3. A line-illuminating device incorporated with the bar-shaped light guide according to claim 1 or claim 2, wherein said bar-shaped light guide is housed in a casing so that the emission plane is exposed, at least one end of the bar-shaped light guide is provided with a light-emitting means, and said light scattering patterns are provided so that an area for forming the light scattering patterns is larger in proportion to the distance from the light-emitting means.
4. A line-illuminating device comprising a light guide section and a light condensing section, the light guide section being arranged to guide light from a light-emitting source incident from an end surface to the longitudinal direction, to allow the light to be scattered by light scattering patterns formed along the longitudinal direction, and to allow the scattered light to be emitted from an emission plane formed along the longitudinal direction, and the light condensing section being arranged to allow the light emitted from the emission plane of said light guide section to be condensed on a document reading surface, wherein said light guide section and said light condensing section are arranged in contact with each other or they are closely arranged.
5. The line-illuminating device according to claim 4, wherein said light condensing section is provided with a reflecting curved plane for allowing the light emitted from the emission plane of said light guide section to be reflected and allowing

the reflected light to be condensed on the document reading surface.

6. The line-illuminating device according to claim 5, wherein said reflecting curved plane is an oval plane.

7. The line-illuminating device according to any one of claims 4 through 6,  
5 wherein said light guide section and said light condensing section are covered by a light guide casing except the emission plane for the document illuminating light.

8. The line-illuminating device according to any one of claims 4 through 7, wherein one end of said light guide section is provided with a light source and the other end thereof is provided with a reflecting means.

9. The line-illuminating device according to any one of claims 4 through 8,  
10 wherein one end of said light guide section is provided with the light source, and density of the light scattering patterns formed in the longitudinal direction of said light guide section is gradually increased toward the other end of the light guide section.

10. A contact-type image sensor provided with a line-illuminating device in which  
15 the bar-shaped light guide according to claim 1 or claim 2 is incorporated, and a lens array for allowing light reflected from a document among the illuminating light from said line-illuminating device to be condensed toward a line image sensor made of a photoelectric conversion element, characterized in that said lens array is composed of a plurality of rod lenses, and an optical axis of said lens array is arranged in an area with  
20 less change of light intensity relative to elevation of the document.